Wood or Peabody, as full treatment of the extra-thermodynamic wastes as in Cotterill, or of experimental methods as in Carpenter; but the book exhibits much of that rarest of talents, ability to condense, and, for an abridged work, maintains an extraordinarily high standard of scientific quality. The discussion of the 'entropy-temperature' diagram of Professor J. Willard Gibbs, which is only now, after many years, finding its place in the treatment of the heat motors, is the fullest and most satisfactory yet produced, not even excepting the work of its first trans-Atlantic advocate, Mr. J. Macfarlane Gray. This method of graphical treatment is gradually finding its place, and a very useful one, in the discussion of thermodynamic machines. Following Wood and Peabody, and later writers, this author has adopted, in all his own computations, the value, 778, for the thermodynamic equivalent obtained by Rowland. It may probably be safely asserted that this value is now universally accepted.

The unavoidable brevity with which all topics are treated in so small a space gives the reader occasion, frequently, to wish that the volume had been doubled in size, and fuller discussion and more of result thus secured; but the book takes its place, among the many other treatises on the steam engine, as meeting a need that is being continually felt more and more by engineers, and which is not as well supplied by any other of the existing abridged discussions of the theory of the machine. It is well up to date in its practical aspects, as well as in the van on its purely scientific side.

R. H. THURSTON.
CORNELL UNIVERSITY.

An Introduction to Chemical Analysis for Beginners.—From the Sixth German Edition of DR. FR. RUDORFF.—Translated by CHAS. B. GIBSON and F. MENZEL.—Chicago, The W. J. Keener Co. 8 vo., 96 pp. Price $1.00

This book is divided into two parts: Part I, Reactions; and Part II, Systematic Course of Qualitative Analysis. Metallic copper is the first substance examined, and then follow copper, zinc, zinc chloride, manganous sulphate, iron, lead, etc., in the order named. A careful examination of this part fails to detect any great novelty either of matter or arrangement. In Part II the metals are grouped under the familiar group reagents except that lead, mercury and silver are placed along with those precipitated by hydrogen sulfid and not, as is usual, separated under hydrochloric acid as group reagent. The scheme of analysis is well conceived, but offers little of novelty. The explanations and notes have been carefully adjusted to meet the needs of the student and are a valuable feature. The translation is, however, a very slovenly piece of work, and the nomenclature is especially bad. For example, on page 72, we find 'ammonic' sulfid written Am_2S, and lower down we have NH_4OH. Why the authors deny to bismuth cobalt and nickel the ic terminations which they give to nearly all the other metallic salts is not apparent. Several very awkward sentences occur. For example, in the introduction, "We have made a few additions calculated to assist the medical and dental student who suffers mainly the disadvantage of being unable to devote but a small part of his time to chemical studies."

The mechanical execution of the book is pretty good. There is no index.

EDWARD HART.
LAFAYETTE COLLEGE.

NOTES AND NEWS.

PALEOBOTANY.

A LARGE collection of fossil plants made by Professor W. P. Jenny in the Cretaceous rim of the Black Hills during the past field season has just been opened at the National Museum and proves to be of the highest interest to paleontology. It was made under